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| 10/500,643 | 07/01/2004 | Martin McVicar | KEL01 P-136 | 2869 |
| 7590 03/08/2006 | | | EXAMINER | |
| Timothy A Flory Van Dyke Gardner Kinn & Burkhart 2851 Charlevoix Drive SE Post Office Box 888695 Grand Rapids, MI 49588-8695 | | | COOLMAN, VAUGHN | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3618 | |
| DATE MAILED: 03/08/2006 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/500,643

Applicant(s)

MCVICAR ET AL.

Examiner

Vaughn T. Coolman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,6,7 and 10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6,7 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3, 4, 6, 7, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki (U.S. Patent No. 3,998,288) in view of Skaalen et al (U.S. Patent No. 4,599,030) and further in view of Stimson (U.S. Patent No. 5,570,754).

[**claim 1**] Aoki shows a four-directional forklift truck (FIG 6) comprising a chassis (FIG 2, item L) having two front wheels (items B, C) and one rear wheel (items A), each wheel being directionally adjustable (FIGS 3, 4) by rotation about a substantially vertical axis (items P, Q, R). The forklift truck of Aoki is operable in three modes: conventional or standard, forward and reverse with rear wheel steering (FIG 1); sideways, translation right or left (FIG 4); and carousel mode, wherein the three wheels are set at respective directions in which their axes of rotation intersect at a substantially common vertical axis (FIG 3, item O) equidistant from each wheel whereby the truck rotates substantially about the common vertical axis.

However, Aoki does not show the elements of either a respective motor for driving each of the three wheels selectively in either one of two opposite directions of rotation, or all three wheels being driven in the carousel mode. Skaalen teaches the use of a respective hydrostatic motor corresponding to each wheel in order to drive each wheel (Column 2, lines 46-49) selectively in either one of two opposite directions of rotation (FIG 8). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the forklift truck shown by Aoki with a hydrostatic motor driving each wheel as taught by Skaalen,

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since such a modification would provide the of forward and reverse travel in conjunction with better traction control and handling for the forklift truck.

Aoki also fails to disclose a hydraulic system that supplies hydraulic fluid under pressure simultaneously to the two front wheels and one rear wheel. Stimson teaches (Column 7, lines 7-14) the use of a hydraulic system (shown in FIG 5) for supplying hydraulic fluid under pressure simultaneously to the two front wheels (right front wheel motor and left front wheel motor in FIG 5) and one rear wheel (either of left rear wheel motor or right rear wheel motor in FIG 5) whereby all three wheels are always driven or not driven at the same time (Column 7, lines 1-6). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the forklift truck shown by Aoki as modified by Skaalen, with the hydraulic drive system as taught by Stimson, since such a modification would provide the advantage of supplying equal amounts of torque to each drive axle which, on a consistent driving surface such as a typical factory or warehouse floor, will aid in accurate steering, especially in the carousel mode. The combination of Aoki, Skaalen, and Stimson would disclose the forklift truck rotating substantially about the common vertical axis described above with all three wheels being driven. Examiner notes that the combination will allow the wheels to be rotated 360 degrees, as taught by Skaalen (Column 4, lines 43-45), and the wheels could rotate about a vertical axis that extends through the latitudinal and longitudinal centers of the wheels, as taught by Stimson (FIGS 8 and 10), which would allow all wheels to be driven in the same direction and perform all of the functions of the invention disclosed in the instant application.

[claim 3] Aoki in view of Skaalen and Stimson discloses all of the elements of the claimed invention as described above, and further, the disclosure of Stimson's hydrostatic motor

teaches that each motor has first and second hydraulic fluid inlet ports in the motor cylinder case (shown in FIGS 4 and 5). Stimson teaches that the motors are able to rotate the wheels in two opposite directions by using the swash plate control (FIG 5, item 138). Using the Stimson motor, it is obvious that the application of hydraulic fluid under pressure to the first inlet port drives the wheel in one direction and the application of hydraulic fluid under pressure to the second inlet port drives the wheel in the opposite direction (Column 7, lines 1-6). Also, the hydraulic circuit of Stimson shows a source of hydraulic fluid under pressure (FIG 5, item 112). To power the four hydrostatic motors of the Stimson invention, the source of pressurized hydraulic fluid has at least first and second fluid supply ports (shown in FIG 5), the hydraulic fluid under pressure being selectively supplied at the first or second supply port in order to drive the motors independently as stated above.

[claim 4] Aoki in view of Skaalen and Stimson discloses all of the elements of the claimed invention as described above, and furthermore, the forklift truck of Aoki modified as taught by Skaalen and Stimson is obviously capable of operating in standard mode wherein the front wheels are set substantially in the front-to-rear direction of the chassis, and the rear wheel is steerable to turn the truck in the required direction, as shown (FIG 1) and described (Column 2, lines 23-31) by Aoki, with each hydrostatic motor driving each wheel in the same direction of rotation. Skaalen teaches the independence of each drive wheel motor (Column 4, lines 18-48), and therefore could reverse the flow, either at the source, or at the distributor valve (FIG 7, item 87) to one of the front wheels of Aoki (FIG 4, item B), and is therefore capable of operating in the sideways mode wherein the rear wheel is set substantially normal to the front-to-rear direction of the chassis, and the front wheels are steerable simultaneously in opposite directions

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of rotation, as shown by Aoki in FIG 4. Finally, when the forklift truck of Aoki as modified by Skaalen and Stimson is operated in the carousel mode described above, all wheels are capable of rotating in the normal or standard direction, as described above relating to standard mode. In regards to the actuation of the switchover valve in the various modes, as stated above, Skaalen performs the identical function of reversing the fluid flow to an individual motor in substantially the same way, by operator controls, with identical results of rotating in individual wheels in either identical or opposite directions.

Furthermore, Stimson teaches, in a separate embodiment, a flow reverser (FIG 12, item 270) or switchover valve that reverses the direction of hydraulic fluid flow to two of the wheel motors. The combination of Stimson with Aoki and Skaalen would obviously be capable of meeting the claim limitations with regards to the actuation and non-actuation of the switchover valve.

[claim 6] Aoki in view of Skaalen and Stimson, discloses all of the elements of the claimed invention as described above. In addition, for the reasons stated above in re claim 1, the forklift truck of Aoki modified as taught by Skaalen and Stimson is obviously capable of operating in the carousel mode, whereby in the carousel mode all three wheels drive the truck about the common vertical axis in a given direction of rotation. Furthermore, Stimson teaches, in a separate embodiment, a flow reverser (FIG 12, item 270) or switchover valve that reverses the direction of hydraulic fluid flow to two of the wheel motors. The combination of Stimson with Aoki and Skaalen would obviously be capable of meeting the claim limitations with regards to the actuation and non-actuation of the switchover valves.

[claims 7 and 10] Aoki in view of Skaalen and Stimson, discloses all of the elements of the claimed invention as described above. Additionally, Skaalen teaches an electrical controller that allows the driver to select modes of steering via a display at the operator's console (Column 6, lines 18-20). Therefore, the forklift truck of Aoki modified as taught by Skaalen and Stimson is obviously capable of entering the carousel mode from sideways mode by reversing hydraulic flow to one of the front wheels, or de-actuating the switchover valve, when the front wheels are steered through a sufficient angle to set the three wheels at respective directions in which their axes of rotation intersect at the said substantially common vertical axis. In the controller taught by Skaalen, a microprocessor will command the steering of wheels from sideways to carousel mode when the operator desires to do so. It would have been obvious to one having ordinary skill in the art at the time the invention was made to automate the transition between the steering modes shown by Aoki, with the electrical controller taught by Skaalen, since it has been held that broadly providing a mechanical or automatic means, the electrical controller; to replace manual activity, the steering wheel and levers of Aoki (FIGS 1, 2); which has accomplished the same result, transition between steering modes; involves only routine skill in the art.

Furthermore, Stimson teaches (Column 13, lines 25-37) that when the drive wheels are steered through the sufficient angle to set the wheels at respective directions in which their axes of rotation intersect at the substantially common vertical axis, the flow reverser causes the hydraulic fluid provided to two wheel to the right side drive wheels to flow in the opposite direction of the fluid supplied to the left side drive wheels, thereby entering carousel mode and rotating the tractor about the substantially common vertical axis.

Response to Arguments

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

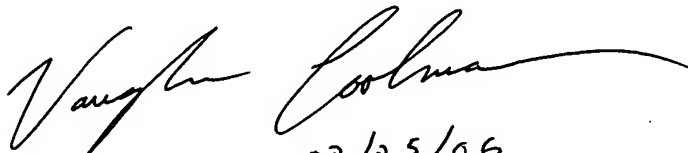
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vaughn T. Coolman whose telephone number is (571) 272-6014. The examiner can normally be reached on Monday thru Friday, 8am-6pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Ellis can be reached on (571) 272-6914. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

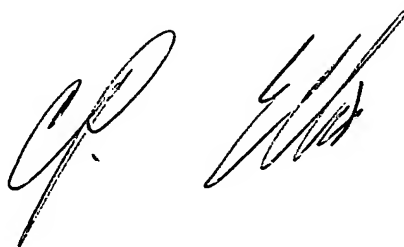
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


02/25/06

Travis Coolman
Examiner
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